

REMARKS

This response is being filed with a Request for Continued Examination (RCE).

The foregoing amendment is provided generally to impart precision to the claims, by more particularly pointing out the invention, rather than to avoid prior art.

Claims 173-195 are pending in this application. Claims 173-195 have been rejected. In this response, claim 173 has been amended, and claims 196-201 have been newly added. No new matter has been added. Reconsideration and withdrawal of the rejections set forth in the Final Office action dated February 17, 2009, are respectfully requested in view of the remarks below.

Interview Summary Statement

A telephonic interview was conducted between Examiner Wensing W. Kuo, and applicant's representative, Yenyun Fu. The undersigned representative wishes to thank Examiner Kuo for the telephonic interview conducted on June 16, 2009. During the interview, independent claim 173, references Hauer, et al. (U.S. Pat. No. 5,600,741) and Gruenwald, et al. (U.S. Pat. No. 5,987,202) were discussed.

Agreement was reached between the Examiner and the applicant that the discussed amendments to independent claim 173 would overcome the rejections based on the presently cited references.

The Examiner indicated that a new search would likely be performed. Applicant herein submits the amendment based on the discussion with the Examiner. Such amendment is reflected in independent claim 173. Applicant thanks the Examiner for providing such guidance during the interview.

35 U.S.C. § 103 Rejections

Claims 173-176, 178, 180-183, 185, 186 and 192-195

The Examiner has rejected claims 173-176, 178, 180-183, 185, 186 and 192-195 under 35 U.S.C. §103(a) as being allegedly unpatentable over Hauer, et al. (U.S. Patent No. 5,600,741 hereinafter referred to as 'Hauer'), in view of Gruenwald, et al. (U.S. Patent No. 5,987,202 hereinafter referred to as 'Gruenwald'). Applicant respectfully disagrees.

I. The cited references do not disclose all the subject matter in the independent claim 173

II. The cited references cannot be combined in a manner suggested by the Examiner

Applicant respectfully submits that Hauer and Gruenwald do not render obvious applicants independent claim since 1) when viewed individually Hauer and Gruenwald do not disclose each and every element of independent claim 173 and 2) Hauer and Gruenwald cannot be properly combined in a manner presented in the Final Office action.

For example, independent claim 173 includes:

173. An integrated circuit, comprising:

a semiconductor substrate having electrical circuitry coupled to an optoelectronic device disposed on a first surface of the semiconductor substrate, the semiconductor substrate having a notch extending from a second surface of the semiconductor substrate towards the first surface;

wherein the notch at least partially overlaps with the optoelectronic device on the first surface;

a optical reflector assembly disposed within the notch;

wherein, the optical reflector assembly is formed from a substrate

and optically couples light incident within the notch with the optoelectronic device. (Claim 42, emphasis added).

Hauer teaches an "arrangement for coupling optoelectronic components and optical waveguides to one another" (Title, Hauer). The arrangement of Hauer includes "a carrier substrate (11); at least one optoelectronic component (9) or one optical waveguide (1) secured on the carrier substrate (11) and at least one lens (8) provided with an essentially planar surface" (Abstract, Hauer).

However, Hauer does not teach that the "optical reflector assembly is disposed within the notch ... wherein, the optical reflector assembly is *formed from a substrate* and couples *light incident within the notch* with the optoelectronic device", as claimed in independent claim 173.

The Examiner acknowledges this.

Specifically, the Examiner states that "Hauer fails to teach that the optical reflector assembly is formed from a substrate" (Page 3 of Office Action mailed February 17, 2009). The Examiner also acknowledged during the telephonic interview conducted on June 16, 2009, that Hauer does not teach an optical reflector assembly that couples light "incident within the notch" with the optoelectronic device.

However, the Examiner states that "It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the integrated circuit of Hauer with the optical reflector assembly of Gruenwald formed from a substrate for the benefit of providing a method for economical production of optical high-frequency transmitting and receiving modules by providing a desired mirror contour (Page 3-4 of Office Action mailed February 17, 2009)."

Applicant respectfully disagrees with the Examiner's suggested combination.

Hauer teaches away

Applicant respectfully submits that Hauer teaches away from:

- 1) the claimed element of: an optical reflector assembly that couples light "incident within the notch" with an optoelectronic device; and
- 2) the claimed element of: an optical reflector assembly that is "disposed within a notch" and is "formed from a substrate"; and
- 3) the Examiner's presented combination with Gruenwald to include the Pyrex mirror.

The device of Hauer (see for example, **FIG. 1** and **FIG. 5** of Hauer) uses an inclined interface (e.g., surface 4 of **FIG. 1** and surface 91 of **FIG. 5**) to reflect light incident from the optical waveguide to an optoelectronic component through the substrate. Thus, the light from the optical waveguide, being reflected from surface 91, never enters into the open space ("notch") (e.g., not incident within the notch, contrary to applicant's claimed element).

In fact, Hauer explicitly states that the surface 91 *fully reflects* the incoming light; thus, the incoming light is fully deflected and never enters into the open space notch of Hauer.

For example, in Hauer:

"The beams 51, 52, shaped and directed by the hemispherical lens 8, is totally reflected and refracted, respectively, at the surfaces 91 and 92 and is incident on the end face of an optical waveguide 93. (Col. 6, lines 63-67 and Col. 7, lines 1-4)

Thus, applicant submits that not only does Hauer fail to teach the claimed element of an optical reflector assembly that couples light "incident within the notch", Hauer in fact explicitly teaches away from this claimed element.

Moreover, Hauer also teaches away from applicant's claimed element of an optical reflector assembly that is "disposed within the notch" and is "formed from a substrate" since if surface 91 fully reflects light, there would be no need for Hauer to further "dispose" the mirror formed by Pyrex (e.g., a substrate) in the notch to reflect light; since surface 91 or surface 4 fully reflects the incident light coming from the substrate side, any mirror or reflector disposed in the open-space notch would not perform its intended function.

Thus, although Gruenwald appears to describe a mirror 15 formed from a Pyrex glass that is inserted into cavern 12' (Gruenwald, Col. 5 lines 36-39), applicant submits that Gruenwald's mirror could not be combined with Hauer in a manner suggested by the Examiner and still perform its intended function or work with Hauer's device since Hauer explicitly states and illustrates (in **FIG. 1** and **FIG. 5**) that light incident on surface 91 (or surface 4 of **FIG. 1**) is *fully reflected* (e.g., fully reflected *from the notch* to the optoelectronic component 9) and the light is not "incident within the notch".

Therefore, at least for the above stated reasons, applicant submits that Hauer and Gruenwald cannot be combined in a manner as suggested by the Examiner in the Final Office action.

Applicant thus submits that independent claim 173 is patentable over the combination of Hauer and Gruenwald, at least for the above stated reasons.

Furthermore, Gruenwald, also does not teach that an integrated circuit comprises a semiconductor substrate having electrical circuitry coupled to an optoelectronic device disposed on a first surface of the semiconductor substrate, the semiconductor substrate

having "a notch extending from a second surface of the semiconductor substrate towards the first surface", as claimed in independent claim 176.

Thus, even if Hauer and Gruenwald were viewed individually, the individual teachings fail to teach what is claimed in claim 173.

Specifically, Gruenwald fails to teach at least the claimed subject matter of, "a notch extending from a second surface of the semiconductor substrate towards the first surface", as claimed. Hauer fails to teach "an optical reflector assembly disposed within the notch ... wherein, the optical reflector assembly is formed from a substrate and is physically configured for optical coupling light within the notch with the optoelectronic device", as claimed.

Thus, applicant respectfully submits that the independent claim 173 is patentable over Hauer and Gruenwald, when viewed individually, and over the alleged combination of Hauer and Gruenwald, at least for the above stated reasons.

The withdrawal of the rejections under 35 U.S.C. §103(a) is thus respectfully requested for independent claim 173.

Dependent Claims

The Examiner has rejected claim 174-176, 178, 180-183, 185, 186, and 192-195 under 35 U.S.C. §103(a) as being allegedly unpatentable over Hauer in view of Gruenwald. Applicant respectfully disagrees.

The Examiner has rejected claims 177, 179 and 188-191 under 35 U.S.C. §103(a) as being allegedly unpatentable over Hauer as modified by Gruenwald in view of Reedy. Applicant respectfully disagrees.

The Examiner has rejected claim 184 under 35 U.S.C. §103(a) as being allegedly unpatentable over Hauer as modified by Gruenwald, and further in view of Won. Applicant respectfully disagrees.

The Examiner has rejected claim 187 under 35 U.S.C. §103(a) as being allegedly unpatentable over Hauer as modified by Gruenwald, and further in view of Reedy. Applicant respectfully disagrees.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, applicant's silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim. Therefore, the remaining dependent claims are also patentable over the cited references. The withdrawal of the rejections under 35 U.S.C. §103(a) is respectfully requested for claims 174-195.

Newly added claims 196-201

Hauer describes an "arrangement for coupling optoelectronic components and optical waveguides to one another" (Title, Hauer). The arrangement of Hauer "for coupling electronic components and optical waveguides to one another includes a carrier substrate (11); at least one optoelectronic component (9) or one optical waveguide (1) secured on the carrier substrate (11) and at least one lens (8) provided with an essentially planar surface" (Abstract, Hauer).

Hauer, however, does not teach that an integrated circuit comprises "a semiconductor substrate having a notch extending from a second surface of the semiconductor substrate towards the first surface; an optical fiber, having a core region, mounted on the second surface of the semiconductor substrate; wherein the notch extends through the core region of the optical fiber; an optical reflector assembly disposed within the notch", as claimed in independent claim 196.

Specifically, the notch in Hauer does not "extend through the core region of the optical fiber", as claimed. Moreover, Hauer does not teach "an optical reflector assembly" that is "disposed within the notch.

The additional prior art of record do not cure the deficiency. Thus, at least for the above stated reasons, newly added claims 196-201 are also allowable.

CONCLUSION

In light of the amendment, the applicant respectfully requests that the Examiner withdraw all rejections and issue a Notice of Allowance.

If the Examiner believes that a conference would be of value in expediting the prosecution of this application, she is cordially invited to telephone the undersigned counsel at (650) 838-4306 to arrange for such a conference. The Commissioner is authorized to charge underpayment in fees to Deposit Account No. 50-2207, under Order No. 66518-8002.US02 from which the undersigned is authorized to draw.

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Respectfully submitted,



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